

## Unbuffered Memory Module Data Sheet

### MW512N5324U58

512 MBytes, DDR2, PC2-4200 (533 MHz) CL4 240 Pin DIMM

### MW512N6625U58

512 MBytes, DDR2, PC2-5300 (667 MHz) CL5 240 Pin DIMM

#### Description:

**MW512N5324U58/MW512N6625U58** are 512 Megabyte Memory Modules, organized as 64Mx64 bits DDR2-SDRAM. Each module is composed by eight 64Mx8 DDR2-SDRAMs ICs in FBGA package and one serial EEPROM for SPD (Serial Presence Detect), mounted on a JEDEC-Standard 240-pin DIMM (Dual In Line Memory Module) with golden contacts.

#### Features:

- 240-pin DIMM outline, unbuffered
- Double Data Rate architecture; two data transfers per clock cycle
- On-Die Termination Control
- Uses 64Mx8 DDR2-SDRAMs
- Differential clock inputs
- Programmable burst length: 4 or 8
- Clock Cycle Time (MW512N5324U58)
  - ( $t_{CK}$ ) = 3.75 ns (min.) / 8 ns (max.) @ CL=4
- Clock Cycle Time (MW512N6625U58)
  - ( $t_{CK}$ ) = 3.00 ns (min.) / 8 ns (max.) @ CL=5
- EEPROM Serial Presence Detection (SPD)
- Bidirectional, differential data strobe (DQS and /DQS)
- Four internal device banks for concurrent operation
- Auto Refresh to Active ( $t_{RFC}$ ): 105ns (min)
- Auto precharge
- Auto-refresh and Self-refresh modes
- Row address  $A_0$ - $A_{13}$
- Column address  $A_0$ - $A_9$
- SSTL\_18 Interface
- VDD = VDDQ = 1.8 V  $\pm$  0.1 V

#### Specification:

Symbol	AC Characteristic	Min.	Max.	Unit	
$t_{CK}$	CLK Cycle Time	MW512N5324U58 CL=4	3750	8000	ps
		MW512N6625U58 CL=5	3000		
$t_{RC}$	Row Cycle Time (Operation)	60	-	ns	
$t_{RAS}$	Row Active Time	45	70,000	ns	
$t_{RFC}$	Auto Refresh to Active / Auto Refresh Command Time	105	-	ns	

#### Ratings:

	Rating	Unit	Condition
Power Dissipation, Operating (Row Activating, Precharge) @VDD, VDDQ = 1.8V	1.584	W	$T_a=25^\circ\text{C}$
	1.656		
Operating temperature <sup>1</sup>	0 ~ 85	$^\circ\text{C}$	
Storage temperature	-55 ~ 100	$^\circ\text{C}$	

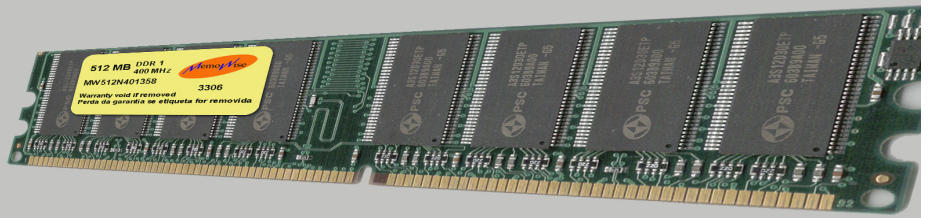
Note:

1. It refers to the operating case temperature of DRAM ICs

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**Dimensions**

All dimensions are in millimeters (Inches); tolerance is  $\pm 0.127$  (0.005") unless otherwise indicated

